

# PATENT ABSTRACTS OF JAPAN

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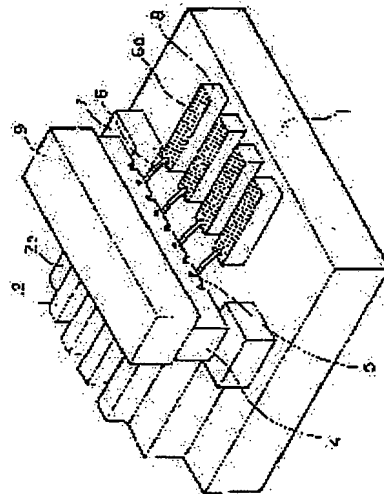
(21) Application number : 61-085260 (71) Applicant : NIPPON TELEGR & TELEPH  
CORP <NTT>  
(22) Date of filing : 14. 04. 1986 (72) Inventor : YAMADA YASUBUMI  
TERUI HIROSHI  
HIMENO AKIRA  
KOBAYASHI MORIO  
YAMADA MAKOTO

## (54) HYBRID OPTICAL WAVEGUIDE CIRCUIT

### (57) Abstract:

PURPOSE: To enable installation of semiconductor laser array elements in the P-side down condition having extremely high positioning accuracy by a method wherein both of optical waveguide circuit parts and element retaining parts are projectedly provided on a substrate making the optical waveguide circuit parts so as to become higher than the element retaining part.

CONSTITUTION: A semiconductor laser array 4 is loaded on element retainers 7 in the P-side down condition as to make the edge surface on the active layer side (the P-side) of the laser array 4 to come in contact with the upper surface of the element retainers 7. Because multistage step difference are formed to the optical circuit substrate and the element retainers 7 are formed in a projecting type, when the semiconductor laser and the optical waveguide circuit are hybridizedly integrated, equipment of the element thereof can be attained in the P-side down condition having high precision, of positioning and at the same time, in the elements formed in an array, because electric connection is performed according to gold wires 6 utilizing space on the lower side of the semiconductor laser 4 without forming an electric wiring pattern on the substrate, electric wiring can be attained while maintaining electric insulation between the respective elements.



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